

WHAT IS CLAIMED IS:

1. A laminated optical disc manufacturing apparatus comprising:

an adhesive applying device adapted to apply an adhesive to a first substrate, forming an adhesive layer having a specific thickness between the first substrate and a second substrate superimposed onto the first substrate; and

a centering device insertable within a common center hole of the superimposed substrates, the centering device comprising at least two contact pins configured to simultaneously contact an inside circumferential edge of the common center hole, wherein the contact pins are adapted to retractably extend in substantially opposite directions to press against the inside circumferential edge of the common center hole and align the superimposed substrates.

2. The laminated optical disc manufacturing apparatus according to claim 1, further comprising a provisional bonding device adapted to partially cure the adhesive layer between the aligned substrates, the provisional bonding device partially bonding and provisionally fastening the aligned substrates.

3. The laminated optical disc manufacturing apparatus according to claim 1, the adhesive comprising a radiation cure resin.

4. The laminated optical disc manufacturing apparatus according to claim 1, the adhesive comprising a thermoplastic resin.

5. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

a layer thickness measuring device adapted to measure an actual thickness of the adhesive layer between the first substrate and the second substrate;

a layer thickness difference detection device adapted to determine an adhesive layer thickness difference between the measured adhesive layer thickness and a target adhesive layer thickness; and

a control device adapted to control at least the adhesive applying device based on the adhesive layer thickness difference.

6. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

a spreading device adapted to integrally rotate the superimposed first substrate and second substrate at a predetermined spreading rotational speed;

wherein the adhesive applying device is further adapted to apply the adhesive at a predetermined application rotational speed onto a predetermined radial position on a first surface of the first substrate, the adhesive forming an annular mound having a top edge of a narrow peak shape in cross section;

wherein the second substrate is superimposed onto the first substrate by contacting the top edge of the annular mound with the second substrate; and

wherein the annular mound is spread from the predetermined radial position toward an outside circumference of the first substrate to form the adhesive layer between the first substrate and the second substrate.

7. The laminated optical disc manufacturing apparatus according to claim 2, further comprising a bonding device for completely curing the partly cured adhesive layer and completely bonding the first and the second substrates throughout the adhesive layer.

8. The laminated optical disc manufacturing apparatus according to claim 2, further comprising a warping prevention device that provisionally bonds a partially bonded portion of the first and the second substrates and preventing deformation of the provisionally bonded first and second substrates.

9. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

an adhesive supply source adapted to supply the adhesive to the adhesive applying device, the adhesive being controlled to have a first predetermined temperature; and

a defoaming tank adapted to remove bubbles from the adhesive at a second predetermined temperature, the second predetermined temperature being higher than the first predetermined temperature.

10. The laminated optical disc manufacturing apparatus according to claim 9, the adhesive supply source comprising:

an adhesive recovery tank for recovering adhesive unused in the formation of the adhesive layer; and

a filter adapted to filter the recovered adhesive at a third predetermined temperature higher than the first predetermined temperature;

wherein the defoaming tank is further adapted to remove bubbles from the filtered adhesive.

11. The laminated optical disc manufacturing apparatus according to claim 10, wherein the second predetermined temperature is equal to the third predetermined temperature.

12. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

a suction device adapted to suction the adhesive layer formed between the first substrate and the second substrate with a predetermined suction force.

13. The laminated optical disc manufacturing apparatus according to claim 12, further comprising:

a provisional bonding device adapted to partially cure the suctioned adhesive layer to partially bond and provisionally fasten the first substrate and the second substrate.

14. A laminated optical disc manufacturing method comprising:

applying an adhesive to a first substrate to form an adhesive layer having a specific

thickness between the first substrate and a second substrate;
superimposing the second substrate onto the first substrate;
inserting a centering device within a common center hole of the superimposed substrates, the centering device comprising at least two contact pins configured to simultaneously contact an inside circumferential edge of the common center hole, wherein the contact pins are adapted to retractably extend in substantially opposite directions; and aligning the superimposed substrates, the aligning comprising pressing the contact pins against the inside circumferential edge of the common center hole.

15. The laminated optical disc manufacturing method according to claim 14, further comprising partially bonding and provisionally fastening the aligned substrates.

16. The laminated optical disc manufacturing method according to claim 14, further comprising curing the adhesive layer in proximity to the center hole in the superimposed first and second substrates.

17. The laminated optical disc manufacturing method according to claim 15, further comprising completely curing the partly cured adhesive layer and completely bonding the first and the second substrates throughout the adhesive layer.

18. The laminated optical disc manufacturing method according to claim 14, further comprising:

suctioning the adhesive layer formed between the first substrate and the second

substrate with a first predetermined suction force.

19. The laminated optical disc manufacturing method according to claim 18, further comprising:

partially curing the suctioned adhesive layer to partially bond and provisionally fasten the first substrate and the second substrate.